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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/910,422	07/20/2001	Andrew S. Wright	DATUMTE.009 A	2659
20995	7590	02/08/2005	EXAMINER	
KNOBBE MARTENS OLSON & BEAR LLP 2040 MAIN STREET FOURTEENTH FLOOR IRVINE, CA 92614			TRAN, KHANH C	
			ART UNIT	PAPER NUMBER
			2631	

DATE MAILED: 02/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/910,422

Applicant(s)

WRIGHT ET AL.

Examiner

Khanh Tran

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 July 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-13, 17-25 and 30-34 is/are allowed.
- 6) ☒ Claim(s) 26 and 27 is/are rejected.
- 7) ☒ Claim(s) 14-16 and 28-29 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>02/05/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 14 is objected to because of the following informalities: in line 1, "post-conditioning" should be changed to -- composite waveform decresting --. Appropriate correction is required.

2. Claim 15 is objected to because of the following informalities: in line 1, "post-conditioning" should be changed to -- composite waveform decresting --. Appropriate correction is required.

3. Claim 16 is objected to because of the following informalities: in line 1, "post-conditioning" should be changed to -- composite waveform decresting --. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 26-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Shea et al. U.S. Patent 6,563,856 B1 in view of Piesinger U.S. Patent 5,870,047.

Regarding claim 26,

in column 9, lines 30-56, referring to figure 7 of O'Shea et al. invention, a transmitter 700 receives a plurality of user data streams (data bursts) 705a 705b ... 705n. Two contiguous bits of unique word for frame synchronization are appended onto the start of each user data stream. Hence, the plurality of user data streams (data bursts) 705a 705b ... 705n corresponds to the claimed plurality of data streams and includes the claimed first data stream and second data stream.

The data bursts of each user data stream are then spread with identical spreading code at 715a to 715n. Each data stream is then shifted by a delay equivalent to one chip of the spreading code with respect to the previous user. O'Shea et al. expresses that there is no delay for the first user. The shifted user streams are then summed together at summer 725 and fed to the pulse-shaping filter 730 prior to the transmitter intermediate and radio frequency stages 735. O'Shea et al. does not expressly teach the delay being a fraction of a symbol period as claimed in the application claim. In column 4, lines 5-45, O'Shea et al. expresses that the term chip refers to one bit of the pseudo-noise spreading code. Also in column 8, lines 20-42, figures 4a, 4b and 4c, O'Shea shows several examples of when the input signal is over-sampled at more than one sample per symbol. As known in the art, each sample can be represented by a number of bit resolutions. To support the foregoing argument, Piesinger discusses a prior art modulator (see column 1, lines 44-65, also figure 1), wherein a pulse-shaping

network produces a number of output samples per symbol each having a ten-bit resolution. In view of Piesinger discussions, it would have been obvious for one of ordinary skill in the art at the time the invention was made that the delay on each user data stream as taught in O'Shea et al. invention corresponds to a fraction of symbol period as claimed in the instant application. The delay is a fraction of symbol period because the delay is one bit with respect to the previous user, and the symbol period comprises a plurality of bits. There is no delay for the first user as recited above, see figures 7. The delay is performed prior to the summing by the sum 725. O'Shea et al. does not expressly disclose the arrangement as shown in figure 7 reduces the probability of alignment in amplitude and phase of similar symbols in a plurality of data streams as claimed in the preamble. Nevertheless, it would have been obvious for one of ordinary skill in the art at the time the invention was made that the staggered (delay) user data streams would reduce the probability of alignment in amplitude and phase of similar symbols in a plurality of user data streams. The reduction of the probability of alignment as recited above is due to the displacement of each user data stream's individual signal peak from another user data stream's signal peak as a function of time by the delay.

In making rejection argument, the Examiner does not give weight to other limitations in the claimed preamble because the body of the application claim make no reference back to the "the plurality of data streams are eventually pulse-shaped, upconverted, and combined to a composite data stream".

Regarding claim 27, referring back to figure 7, in column 9, lines 30-55, transmitter 700 receives a plurality of user data streams 705a to 705n. Hence, user data streams 705a to 705n correspond to the claimed plurality of data streams. O'Shea et al. expresses that each user data stream is then shifted by a delay equivalent to the length of one chip of the spreading code with respect to the previous user. As recited in claim 26, one chip is referred to one bit. Hence, each user data stream being shifted by one bit delay corresponds to the claimed substantially evenly through the symbol period.

Allowable Subject Matter

5. Claims 28-29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. Claims 1-3 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 1, claim 1 is allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose a predictive weight generator adapted to reduce an amount of waveshaping processing applied to a plurality of input symbol streams by a waveshaping circuit, the predictive weight

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generator comprises "pulse-shaping filter emulation circuits, mixers, summing, a comparator, and a delay circuit configured as set forth in the application claim". It is noted the closest prior art, Thron et al. (US 6,304,140 B1) and Tapio et al. (US 6,741,663 B1) discloses linearization method for amplifier and amplifier arrangement. However, Thron et al. (US 6,304,140 B1) and Tapio et al. fail to anticipate or render the above underlined limitations obvious.

7. Claims 4-8 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 4, claim 4 is allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose a post-conditioning circuit that generates a de-cresting pulse that can decrease an amplitude of a signal peak of a composite multicarrier signal in real time, the post-conditioning circuit comprises "elements configured as set forth in the application claim". It is noted the closest prior art, Thomson (US 6,130,916) teaching method and apparatus for improving a transmission data rate of baseband data in a wireless, and Schenk (US 6,529,925 B1) teaching method for reducing the crest factor of a signal, however, fail to anticipate or render the above underlined limitations obvious.

8. Claims 9-11 are allowed.

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The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 9, claim 9 is allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose a pulse-shaping circuit that reduces a probability of an alignment in amplitude and phase of similar symbols in a plurality of input symbol streams, the a pulse-shaping circuit comprises "delay circuit in at least a first data path, where the first data path is a path from an input symbol stream to the composite data stream, where the delay circuit delays data in the first data path by a fraction of a symbol period relative to data in a second data path". It is noted the closest prior art, Jasper et al. (US 5,381,449) teaching peak to average power ratio reduction methodology for QAM communications system, and O'Shea (US 6,563,856 B1) teaching frame synchronization and detection technique for a digital receiver, however, fail to anticipate or render the above underlined limitations obvious.

9. Claims 12-16 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 12, claim 12 is allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose a composite waveform de-cresting circuit that digitally generates at least one de-cresting phase shift in real time that allows a composite multicarrier signal to be generated with a

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decrease in an amplitude of signal peak, the composite waveform de-cresting circuit comprises "elements configured as set forth in the application claim". It is noted the closest prior art, Thomson (US 6,130,916) teaching method and apparatus for improving a transmission data rate of baseband data in a wireless, and Schenk (US 6,529,925 B1) teaching method for reducing the crest factor of a signal, however, fail to anticipate or render the above underlined limitations obvious.

10. Claims 17-21 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 17, claim 17 is allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose a method of controlling at least a portion of coefficients used in waveform shaping applied to a plurality of baseband signals, the method comprising "the steps performing tasks as set forth in the application claim". It is noted the closest prior art, Thomson (US 6,130,916) teaching method and apparatus for improving a transmission data rate of baseband data in a wireless, and Schenk (US 6,529,925 B1) teaching method for reducing the crest factor of a signal, however, fail to anticipate or render the above underlined limitations obvious.

11. Claims 22-25 are allowed.

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The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 22, claim 22 is allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose a method of digitally decreasing an amplitude of a selected portion of a composite multicarrier signal in real time, the method comprising "the steps performing tasks as set forth in the application claim". It is noted the closest prior art, Thomson (US 6,130,916) teaching method and apparatus for improving a transmission data rate of baseband data in a wireless, and Schenk (US 6,529,925 B1) teaching method for reducing the crest factor of a signal, however, fail to anticipate or render the above underlined limitations obvious.

12. Claims 30-34 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 30, claim 30 is allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose a method of digitally decreasing an amplitude of a selected portion of a composite multicarrier signal in real time, the method comprising "the steps performing tasks as set forth in the application claim". It is noted the closest prior art, Thomson (US 6,130,916) teaching method and apparatus for improving a transmission data rate of baseband data in a wireless, and Schenk (US 6,529,925 B1) teaching method for reducing the

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crest factor of a signal, however, fail to anticipate or render the above underlined limitations obvious.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Thron et al. U.S. Patent 6,304,140 discloses "Digital Predistortion For Amplifiers".

Thomson U.S. Patent 6,130,916 discloses "A method and apparatus for Improving a Transmission Data Rate of Baseband Data in a Wireless Network".

Mc Gowan et al. U.S. Patent 6,236,864 discloses "CDMA Transmit Peak Power Reduction".

Tapio U.S. Patent 6,741,663 B1 discloses "Linearization Method For Amplifier, And Amplifier Arrangement".

Schenk U.S. Patent 6,529,925 B1 discloses "A Method for Reducing The Crest Factor of A signal".

Lundh U.S. Patent 6,765,899 B1 discloses "A Method and An Apparatus for Clipping Signals In A CDMA System".

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh Tran whose telephone number is 571-272-

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3007. The examiner can normally be reached on Monday - Friday from 08:00 AM - 05:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Khánh công Trâm

02/05/2005

Examiner KHANH TRAN.